

Docket No. 290428US3PCT

10/577651

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Hisashi MATSUDA, et al.

AP20 Rec'd PCT/PTO 01 MAY 2006

SERIAL NO: New U.S. PCT Application Based on PCT/JP04/16461

GAU:

FILED: Herewith

EXAMINER:

FOR: TURBINE CASCADE STRUCTURE

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s), published application(s) or issued patent(s) which may be related to the present application. In accordance with the waiver of 37 CFR 1.98 dated September 21, 2004, copies of the cited pending applications are not provided. Cited published and/or issued patents, if any, are listed on the attached PTO form 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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Form PTO 1449  
(Modified)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.

290428US3PCT

SERIAL NO.

104577654  
New U.S. Patent Application  
Based on PCT/JPO/04/16461

LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Hisashi MATSUDA, et al.

FILING DATE

Herewith

GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	6 419 446	07/16/02	KVASNAK et al.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO	62-3847	01/09/87	JP (equivalent of US4704066)		NO
	AP	5-44691	02/23/93	JP		NO
	AQ	55-142909	11/07/80	JP		NO
	AR	73304/1982	05/06/82	JP		NO
	AS	63503/1988	4/26/88	JP		NO
	AT	61-252838	11/10/86	JP (equivalent of US4709546)		NO
	AU	1-237305	09/21/89	JP		NO
	AV	4-78803	12/14/92	JP		NO
	AW	4-124406	04/24/92	JP		NO
	AX	9-112203	04/28/97	JP		NO
	AY	2000-230403	08/22/00	JP		NO

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AZ	SHIN, T. I-P et al., "Controlling Secondary-Flow Structure by Leading-Edge Airfoil Fillet and Inlet Swirl to Reduce Aerodynamic Loss and Surface Heat Transfer", Proceedings of ASMS Turbo Expo, 2002.	<input type="checkbox"/> Additional References sheet(s) attached
Examiner			Date Considered

\*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

New U.S. PCT Application Based on PCT/JP04/16461

Hisashi MATSUDA, et al.

Docket No. 290428 US

#### STATEMENT OF RELEVANCY

- 1) References AO - AU have been cited in the International Search Report. A copy of these references is being submitted herewith.
- 2) References            have been cited in the corresponding            Search Report. A copy of these references is being submitted herewith.
- 3) References AA, AV - AY & AZ are discussed in the specification. A copy of these references is being submitted herewith.
- 4) References            are additional prior art known to Applicant. A copy of these references is being submitted herewith.

**AV: JP4-78803**

This discloses a turbine nozzle preventing secondary flow by suppressing a boundary layer caused at an annular flow peripheral wall surface of the turbine nozzle, and also preventing the secondary flow loss by the secondary vortex to thereby improve the turbine performance. In this invention, the turbine nozzle has a structure satisfied by an equation determined by the nozzle blade height, inclinations of rear edge lines at the intermediate portion of the nozzle blade with respect to a reference line passing the rotation center of the turbine, and heights of the rear edge lines.

**AW: JP4-124406**

This discloses a stationary blade device of an axial flow turbine, in which a front edge portion and a rear edge portion of the stationary blade have equal curved inclination angles in an expansion flow direction of an expanded fluid to thereby reduce the secondary flow loss.

**AX: JP9-112203**

This discloses a turbine nozzle for reducing the secondary flow loss by controlling turbine nozzle flow line and flow distribution with inclination of the nozzle and throat width(S)/annular pitch (T) distribution to thereby improve turbine stage performance, in which the ration of S/T is determined by a specified equation at the root portion, central portion and front portion of the turbine nozzle.

**AY: JP2000-230403**

This discloses an axial flow rotating machine such as a stationary blade of a turbine for guiding working fluid, in which a protruded staged portion is formed to a rear surface side, i.e. suction side, of the blade toward blade height direction from a chip side and hub side to thereby reduce a secondary loss of the turbine blade.